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AUTHOR Eley, Joanna
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ABSTRACT

The Alford Information Technology Centre represents a new approach to the provision of information technology in schools. The center is a single-story extension to an existing secondary school, housing a wide range of information handling media, intended to serve both the schools and the local community. The report's eight sections (1) describe the nature of the center and of the report; (2) indicate the significance of new pressures for change and the growing impact of information technology; (3) set out the aims and concepts of the project; (4) describe the briefing process and illustrate the tasks undertaken by the multidisciplinary team; (5) contain a more detailed description of the building, concentrating on the zones comprising it rather than on the details of the design; (6) review the different groups that make use of the center and examine the developing pattern of use of the resources offered; (7) describe the management and funding of the center and the difficulties that have been encountered; and (8) draw conclusions about the project. Included in the report are 25 figures, 14 references, and an appendix summarizing the building details. (MLF)

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PEB/PROGRAMME ON EDUCATIONAL BUILDING

LONG-TERM PERSPECTIVES

6. THE ALFORD INFORMATION TECHNOLOGY CENTRE

BY
JOANNA ELEY

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to article 1 of the Convention signed in Paris on 14th December, 1960, and which came into force on 30th September, 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

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The Programme on Educational Building (PEB) was established by the Council of the Organisation for Economic Co-operation and Development as from January 1972. Its present mandate expires at the end of 1991.

The main objectives of the Programme are:

— to facilitate the exchange of information and experience on aspects of educational building judged to be important by participating Member countries;
— to promote co-operation between such Member countries regarding the technical bases for improving the quality, speed and cost effectiveness of school construction.

The Programme functions within the Directorate for Social Affairs, Manpower and Education of the Organisation in accordance with the decisions of the Council of the Organisation, under the authority of the Secretary-General. It is directed by a Steering Committee of senior government officials, and financed by participating governments.

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6. LE CENTRE DES
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A ALFORD

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This is the sixth case-study in a series devoted to aspects of the longer-term future and their possible implications for school building. These papers look beyond immediate concerns and seek to identify amongst the issues which are beginning to present themselves now those which will be of particular importance in the years to come.

The Alford Information Technology Centre represents a new approach to the provision of information technology in schools. The Centre is a single storey extension to an existing secondary school, housing a wide range of information handling media, intended to serve both the schools and the local community.

The report reviews the ways in which the project was planned and implemented and considers the lessons for other innovative projects. It is intended not only for policy-makers, architects, and educationalists, but also the users of educational buildings, who have an important role to play in the briefing for and provision of educational facilities.

The report was originally commissioned from planning consultants DEGW by the Scottish Education Department and was researched and written by Joanna Eley between November 1987 and February 1988. The ideas expressed are her own and do not commit either the authorities concerned or the OECD.

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SUMMARY

In Section 1 the nature of the Centre and of the report are briefly described

Section 2 indicates the significance of new pressures for change and the growing impact of information technology on the educational context in which the Alford IT Centre operates. It also outlines the lively nature of Alford and its Academy, which made it suitable to host the pilot project, and which affect its outcome.

The start of the project, the aims and concepts with which it began, and the importance of the people initiating it are set out in Section 3.

Section 4 describes the briefing process which was based on a philosophy that looked at the whole resource, the building, the equipment and the management. The traditional and the more novel tasks undertaken by the multidisciplinary team are illustrated. The importance of broad briefing is stressed.

Section 5 contains a more detailed description of the building, concentrating on the zones of which it is comprised rather than on the details of the design.

In Section 6 the different groups that make use of the Centre are reviewed. The developing pattern of use of the resources offered is examined.

The management and funding of the Centre, including its relationship with the existing dual management system in the Grampian Region and the difficulties that have been encountered, are described in Section 7.

The conclusions arrived at are given in Section 8.

1. INTRODUCTION

The Alford Information Technology Centre is an 890m2 single storey extension to an existing school. It consists of a group of ten spaces of different sizes equipped with a full range of information handling material, ranging from books and computers to audio-visual and reprographics equipment. It is located at Alford Academy, a secondary school for 450 children in rural Aberdeenshire, Scotland.

The Centre is a joint development project by Grampian Regional Council and the Scottish Education Department (SED). The intention is to explore, through this experimental building, the technical, managerial and building issues involved in the application of information technology (IT) to rural secondary schools, and to the communities in which the schools are situated.

The project was initiated in 1983, and the building opened in October 1986. This report was prepared during the pilot period. The Centre has only just begun to evolve towards its full potential and so the report can only start the process of evaluation. The conclusions provide guidelines for the future.

2. THE CONTEXT

Changes in education

A new response to new pressures

New pressures create a need for innovation (Fig. 1). Alford IT Centre is an unusual resource, located in a school complex, and offering

> ' open access to all - learners in and out of school, local groups, business and commercial enterprises. Its aim is efficient use of a valuable community resource'.

This opening statement from the prospectus indicates the extent to which the Centre represents innovation in educational provision

Fig. 1 Factors that created the context for the Alford Centre

PRESSURES	NEW NEEDS	INNOVATION
• Technology	• New clientèle	• New facilities
• Crisis in values & beliefs	• New expectations of education	• New skills • New ways of designing, planning, managing
• Financial constraints	• New concepts of work and leisure	
• Cultures and organisations unsuited to circumstance		**e.g. ALFORD IT CENTRE**
• Regional differences		

Computers in schools

The educational context included the determination, growing in strength in many European countries, to improve the integration of IT into the school curriculum (Fig. 2). Computers have had a profound effect already on the educational process, expectations, and building requirements. If they are not yet visible everywhere, this is due in part to shortage of funds. In the early 1980s SED staff participated in a number of conferences organised by the

Organisation for Economic Cooperation and Development (OECD) about IT in schools.

Fig. 2 The importance of computers in education.(1)

1. Children need to be aware of the nature and use of computers in order to be able to cope with the present and future technological society.

2. Computers can help with certain administrative tasks, such as the maintenance of student records and the scheduling of classes.

3. Computers can help to improve the learning process

Integrated information technology

IT in its widest sense includes not only the world of computers, but also other methods of processing and disseminating information, in both words and images. The project was conceived as dealing with information handling of many types. The range of media for creating, processing, storing and retrieving information that was contemplated included:

- books in a library
- computers for creating, processing, storing, and retrieving information
- software
- audio visual equipment
- photographic equipment
- reprographic equipment

Today it is widely agreed that computers need to be integrated in education. Their importance is accepted whether or not they are welcomed. This is however a recent development. New school buildings were designed until a few years ago with only the barest reference to the consequences of such acceptance for spaces and services. A typical description of new facilities, designed in 1972 and occupied in 1977, mentions that recessed floor socket outlets were provided in the 'resources' area of the building to allow for a 'higher potential range of uses', but does not discuss the general building implications of incorporating IT.(2)

Alford's acceptance of the wide spectrum of IT may be a rarity today, but could become commonplace by the mid 1990s. Thus the importance of this pilot scheme can be appreciated, and it can be understood why it has attracted interest at home and abroad.

Other pressures within the community

Since 1945.changes have occurred in the structure of communities, and new patterns of work and leisure have developed. Although the rapid development of IT has not been the sole cause of these changes IT may both accelerate them and influence their impact. Schools, institutions within communities for centuries, can provide natural bridges between the past and the future. Scarcity of resources has increased the need to develop new ways to make good use of the stock of school buildings especially where school rolls are declining. The need for innovation in school design is urgent.

Alford IT Centre is developing a new physical and organisational model for integration of IT into daily life. It has needed, and still needs, energy, expertise dedication and persistence on the part of the people involved in order to emerge, survive and evolve.

Why Alford?

The Alford area

Fewer than 1,000 people live in Alford, a small town 25 miles west of Aberdeen in the Don Valley in the Grampian Region of Scotland (Fig. 3). It is the focal point for a rural, predominantly agricultural population in an area covering some 400 square miles. Much of this area lies to the west of Alford itself, in the foothills of the Grampian mountains (Fig. 4), where people live in small isolated hamlets. Such an area is in fact typical of many rural situations in Europe; perhaps more typical than many residents of crowded urban areas would appreciate. The very dispersed nature of such populations implies that great benefits may be gained from the communication possibilities inherent in IT.

Fig. 3 Alford's location

Fig. 4 Alford and its catchment area in relation to Aberdeen.

Alford town

In a reversal of recent past trends, there has been growth within the Alford area in both employment and leisure opportunities, aided by local government and community initiatives. There are many one- and two-people businesses growing up in the area and these self-employed workers seemed likely to want to use information technology. New leisure initiatives around Alford include a caravan site with golfing and other facilities, transport and railway museums, ski and dry-ski facilities, and a new swimming pool.

The Academy and its catchment area

The primary schools

The Academy is a six year comprehensive secondary school. It has about 450 pupils and 37 teaching staff. There are fifteen feeder primary schools in the catchment area. Several are single teacher schools with very small rolls (Figs. 5, 6 and 7). Some are in remote areas, isolated even from Alford, with a journey to the Academy of over an hour, in winter over difficult roads

Fig. 5 The Alford catchment area

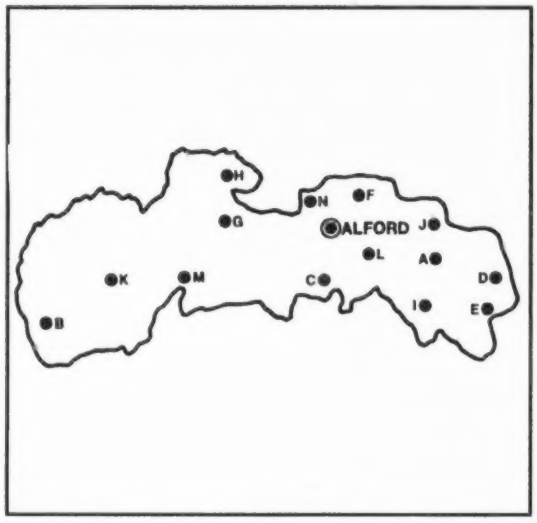


Fig. 6 Kildrummy primary school

Fig. 7 The feeder primary schools

Primary School	Number of pupils	Number of staff
Alford primary	167	7
A Cluny	56	3
B Corgarff	7	1
C Craiglevar	36	2
D Dunecht	44	2
E Echt	34	2
F Keig	16	1
G Kildrummy	14	1
H Lumsden	30	2
I Midmar	50	3
J Monymusk	76	4
K Strathdon	27	2
L Tough	32	2
M Towie	32	2
N Tullynessle	26	2

The Academy and its site

The Academy site already provided facilities for the community when the project started. A swimming pool had been opened in 1983, the Alford public library was on the site, the community had access to the games hall at weekends and during holidays, and a community education programme made use of facilities in the school buildings. Primary school children from the catchment area and other local people thus made regular use of the site. The school had been involved in developing distance learning, and supported self-study, and has taken part in a scheme run by the Council of Educational Technology (CET) in this field.

These factors, together with the energy and enthusiasm of the Rector, combined to justify locating this experimental project at Alford, when it became apparent that some new buildings would be required as the school needed extra space.

3. START OF THE PROJECT

Fundamental aims

The project involved planning and putting up a building, equipping it and staffing it . Its objective has been to improve access to IT in a rural educational environment, and create a resource for the community as a whole, combining the technology with the necessary support for users.(Fig. 8)

Fig. 8 The aims stated in the prospectus

- Enhancement of the viability and quality of teaching in the Academy and the feeder primary schools
- Development of IT skills and supported programmes for school, community and local industry
- Provision of a focal point within the community for home working and learning
- Generation of additional employment openings

Birth of the scheme

Space shortage at the Academy

The project was first proposed in the late summer of 1983. The school needed additional teaching space. There was a mismatch between the forecast and actual numbers of pupils in the late 1970s and early 1980s. Rather than stabilising at 350 pupils as had been suggested by forecasts, the school roll was now expected to rise above 400. Based on the SED computer programme (BADGER) for predicting space needs for implementation of a particular school curriculum, there was a shortfall of 2 classrooms and 2 tutorial rooms. In addition, improvement of the school library would be needed.

People

To the combination of an identified space shortage and a growing awareness of the impact of IT were added the commitment and support of the key personalities in the planning process. 'The right people at the right time and in the right place' enabled this necessary expenditure on buildings to be used with flair and imagination to bring IT to the children and the community, at the same time as relieving pressure on classroom space at the Academy.

Guidance for an architectural project

The project started as a building project initiated by architects. A priority was to establish a development team that would define the problem, set the parameters for the brief, develop it, and see the project through to completion. The regular members of the team established in October 1983. are listed in the Appendix. This team worked for three years, until the opening of the Centre in October 1986, with three main concerns

- the implications of the introduction of new technology at Alford Academy.
- the use of the Academy as a local resource centre serving its network of feeder primary schools.
- the use of the Academy as a community access centre to new technology.

Early concepts

Building requirements

The ideas that the team first put forward were modified over time. Building requirements suggested initially were :

- classroom/seminar rooms
- reprographics and graphics facilities
- audio visual and recording facilities
- dark room
- creche/family facility

As the scheme progressed further needs were perceived, in particular for a public social area, and for offices so that administrative offices within the school could serve the Centre too.

Staff requirements

Staff requirements were expected to be:

- a librarian,
- a clerical assistant
- a graphics/reprographics technician,
- a general technician,
- two electronics engineers,

This gave a basic staff of four, with two peripatetic staff. A clerk or janitor would be necessary for security purposes at all times. The library staff provision was insufficient, so

the Rector reallocated the clerical support specifically to the library, though this necessitated leaving the Centre with too little clerical help. The need for a full time manager was not initially included in the briefing team's projections. One possibility was that the responsibility for decisions would be shared: in the school day taken by the Rector; in the evenings, at weekends and during holidays by the community education officer. An alternative approach was in fact supported by the team, that a single final authority for decisions should be established. In the course of the development of the project, an extra full-time managerial member of staff, described, in a submission to the CET for funds, as a research/development officer, was seen to be necessary.

4. THE BRIEFING PROCESS

The team

The briefing team was multi-disciplinary and included representatives of the SED and the Grampian Education Authority, the Rector, the community education officer, and an educational inspector (HMI). The project architect was involved from the start, and outside advice was sought from space planning consultants. Other advice was sought as required from the Libraries Service and the Grampian Education Microelectronic project. The team met frequently: 20 times between November 1983 and June 1986.

The briefing philosophy

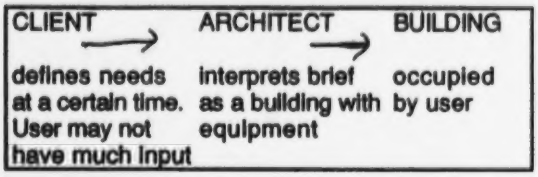
A broad view of briefing

From the start the team took a wider view of the development of the brief than is normal with building projects. This is illustrated by the role that the space planning consultant defined for his part in the procedure, which was to provide:

- guidance on the implications of organisational and educational objectives on the building design brief;
- examples of initiatives being undertaken elsewhere in the United Kingdom and Europe which might be appropriate to Alford;
- an understanding of the impact of information technology on the design of the new buildings and the replanning and adaptation of the existing buildings;
- support to the project architect related to the demands of IT;
- advice on the working processes of the project team.

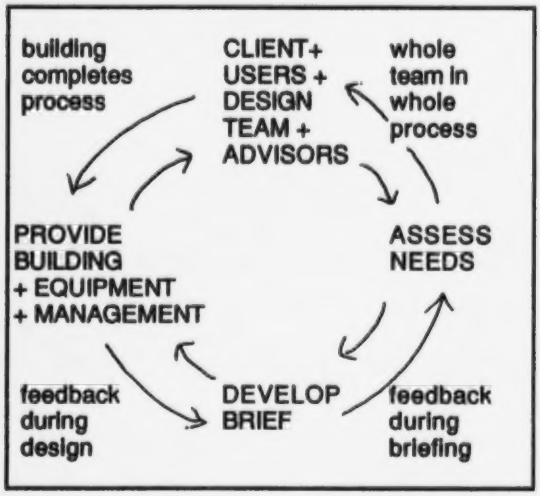
It is in relating the building to its development in long term use that the philosophy differs from that of the traditional process. It could be described as "total immersion" briefing.

Fig. 9 Traditional 'linear briefing'


CLIENT
ARCHITECT
BUILDING
defines needs at a certain time. User may not have much input
interprets brief as a building with equipment
occupied by user

In traditional briefing the building is not conceived as evolving, and the design input is over when the user moves in (Fig. 9).

Fig. 10 The Alford briefing



In the Alford project the need for continued two-way communication between the client/user group and the provider/designer group was identified as crucial and was sustained throughout the long development and building programme. (Fig. 10) As it developed the problem was redefined. The 'menu' of possible activities to be provided by the Centre, rather than the physical nature of the building, became the focus(Fig. 11)

Fig. 11 Differences in the processes

- There were more people involved,on a consistent basis, over a longer period than is usual.
- The process was iterative
- Feedback from potential users, management patterns and sponsorship and funding needs were addressed at the same time, by the same group, as building design and planning
- The end result was thought of not just as a building, but as provision of a resource, comprising three elements - building, equipment and staff
- These were regarded, not as in their final form at handover day, but as able to evolve to meet needs that could only be fully defined once the resource was in place.

Progress and stages of briefing

A wide range of briefing activities

In order to develop a suitable brief, which addressed not only the building, but also the organisational and management structures involved,the acquisition of funding and sponsorship, and the developing use of the equipment housed in the building, a wide range of activities were undertaken.

Traditional methods

Some were relatively typical of traditional briefing, such as generating space relationship diagrams and lists of equipment, and testing them against perceived need by discussion with the client/user (Fig. 12). The particular problem to be solved during this set of activities was how to define and handle the interface between traditional classrooms and teaching spaces on the one hand, and the public areas on the other. Both were to be based on the same stock of space and equipment. The team also considered detailed proposals: for example for the provision of a drinks dispenser in the lounge area.

Fig. 12 Relating building needs to functional demands

ALFORD INFORMATION TECHNOLOGY CENTRE

Building shell briefing questions

Functional demands	Building requirements
• How many: permanent staff? pupils? outsiders? amount of equipment?	• What floor area (m^2)?
• Size of work groups?	• Space configuration • Spaces:number & size
• Type of work: interactive? contemplative? indiv. study? person/machine?	• Space relationships: 1 or 2 floors? • Separation between spaces
• What technology: now? and in the future?	• Wire and duct capacity • Cooling 'heat spots'? • Enclosed machine rooms? • Natural/artificial light?
• Percentage of time open to public?	• Separate access for security? • Access from school?
• Relationship to other activities?	• Location on site and links
• Possible future changes	• Grids • Flexibility

Precedents and site visits

Other activities sought information and inspiration from further afield.. Precedents were examined. The plans of the Information Technology room at a school where equipment was fed from perimeter trunking were reviewed. Site visits to schools, a computer company and to the Scottish Council for Educational Technology (SCET) in Glasgow, were organised for the whole team.

Questionnaires

A questionnaire was sent to the parents of both primary and secondary school children. The aim of the questionnaire was to establish the extent to which the community had an interest in and a need for IT, and to initiate communication about the project. The results showed that despite its rural and relatively isolated population, the community was similar to many throughout Britain in its interest in and level of ownership of personal microcomputers in the home: 98% had a telephone, 27% a video recorder, 16% owned a microcomputer, 30% had operated, and 16% had programmed, computers.

The primary school teachers were asked in another questionnaire about their need for and expected use of the facilities that might be available at the Centre. Their responses were used to refine the brief (Fig. 13).

Fig. 13 Analysis of the responses of primary school head teachers

WHAT EQUIPMENT SHOULD BE HELD?
Video recorders and TV cameras
Tape recorders
Film strip/slide projectors
Overhead projectors
Cameras
Episcopes
Computers
Word processors
Reprographic equipment
Audio equipment

A need for further work with the primary schools was identified. Follow-up training in the use of computing, video and reprographic equipment was given to teachers in order to give them a head start when the Centre became available.

Contact with commercial organisations

The contacts produced a number of very valuable responses, enabling the Centre to obtain high quality equipment and advice. Rank Xerox responded to requests for involvement with a day of consultancy in the marketing of the technology available in the Centre. The company also offered a 1040 copier for the nominal cost of £1.00, and to replace another school machine with a small new one to be used in the reception area.. The Bank of Scotland supplied two home banking terminals. A.M.

International offered, on 'permanent loan', an A3 offset litho press and technician training in its use, a platemaking camera and etching unit, in exchange for the guarantee that, for a period, a minimum quantity of their materials would be purchased. Grampian TV gave a hot foil press that they no longer used. A wirebinding machine was loaned by Presentation Technology, and DRG Litho Ltd loaned an Agfa Gevaert computer-memory-process camera, allowing high quality reproduction work to be undertaken. BABS. loaned the guillotine, jogger, stapler and collator.

The Grampian Educational Microelectronic project gave technical advice, the North East of Scotland Library Service (NESLS) and the Grampian Region Schools Librarian gave advice about the use of IT in libraries, and the new role of libraries as community, leisure and education goals and prospects change.

Organisational and management needs

The team examined the impact on organisations of increased use of IT. A summary of the table below (Fig. 14) appeared in 'Microcomputers in Scottish schools: a national plan', accompanied by the following comment 'Information technology in schools is evolving gradually and the impact on school buildings can be regarded as a staged process with definable thresholds. Although one
view of this process is given in the table, it must be appreciated that the rate of progress will not be consistent throughout the educational system. Some schools will skip stages and others may make little or no progress beyond stage 2 for a considerable time. The time needed to reach stage 4 is likely to be of the order of 25 years or two generations of compulsory schooling and that is considerably less than the life of the building' (3) (4). The school is at level 2 in the terms of this diagram, whereas the Centre is striving for level 4 from the start. A potential problem lies in the fact that the specialist technical support needed for level 4 is not yet provided within the policies and budgets available for schools.

The team reviewed management patterns that might be suitable for integrating a new level of IT into school and community life simultaneously. A clear, describable framework against which performance can be assessed is an important condition for this sort of project.

The team were anxious that the pilot project should be broadened to include review of a possible management structure, as they were aware of the inextricable relationship of management and organisation. They suggested a structure (Fig. 15). The concern with management was an important part of the difference between this form of briefing and the traditional building brief.

Fig. 15 A management structure suggested by the team

Assessment of the Briefing

During the briefing period and the early days of the Centre, Alford, like all of Scotland, was affected by a teachers dispute which ran from May 1985 to December 1986. There was a trade union embargo on curriculum development work, but the Rector ensured that the development and realisation of the brief would go smoothly wherever staff interaction was called for. However, these were not ideal circumstances for guiding a new development of this sort.

In planning and equipping the building the team had control over implementation of the decisions that they reached, and the advice, expertise and continued team-work produced effective results. Where the team had less autonomy, as in implementing a management structure, a subject which has to be placed in a wider political framework, results have been less

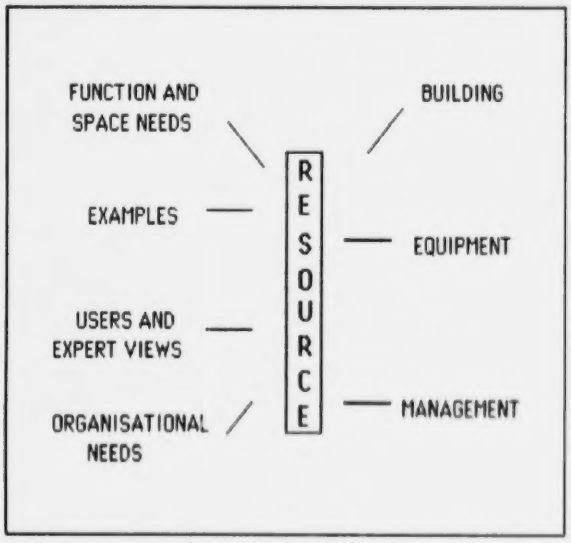
Fig. 14 Stages in the the take-up of IT.

1 EXPERIMENTAL		2 BASIC
Outside school, may be centralised in school, mainly uncoordinated, library not developed.	LOCATION OF RESOURCES	Centralised in school, based on admin. office and library/resource centre.
Ad hoc, relies on individual teacher initiative.	CURRICULUM PENETRATION	Audio visual materials, including software used across subjects in some topics only, organised computer classes, specialist technical and teaching staff in computing
Demonstration, teacher centred, limited hands on use of micros, worksheets as control devices.	MODE OF LEARNING	Class teaching, small project groups and individual learning, some flexible timetabling, open learning and access to courses for adults.
Frequent use of overhead projectors, some use of carousels, TV, limited use of video, 1 micro: 150 pupils. 1/2 audio learning units, language lab. exists but no longer fully used.	TECHNOLOGY	Computer studies centre (10-15 micros networked) 1 terminal: 40 pupils, some micros in depts for project work, 5/6 audio learning units, video use integrated, Viewdata terminal, small digital PABX, internal communications system.
Minimal.	TECHNICAL SUPPORT	Skilled
3 COMPREHENSIVE		**4 INTEGRATED**
Departmental centres and school resource centres.	LOCATION OF RESOURCES	Throughout the school and connected to external networks.
Across the curriculum	CURRICULUM PENETRATION	Vocational, educational and community curricula merge.
Project based, individualised and open learning, potential major usage by adults.	MODE OF LEARNING	Open learning, team teaching, depts. organised as media ateliers, project and individualised learning, school as a community resource centre.
1 terminal: 10 pupils, 4/5 micros (maybe networked) per class, interactive video for use by depts. micros for administration networked throughout school, administrative word processing and computerised accounting, electronic mail.	TECHNOLOGY	1 terminal: 3 pupils, viewdata networking to other schools, community resources and remote databases, resources used by business community, PABX integrates administration and data systems, fully electronic graphics / reprographics system.
Skilled	TECHNICAL SUPPORT	Specialist

good. An effective pattern has still to emerge and be tested within the pilot. .

- The broad approach enabled the brief to consider how the Centre could serve the users, regarding the building as a resource not just an object (Fig. 16). This approach needs to be integrated into all building briefing, especially in innovatory projects, where the answers to 'what does the user need?' are not yet known.

Fig. 16 Briefing for a resource not a building



5. THE BUILDING

Responsibility for the final design, working drawings and construction lay with the Grampian Regional Council Architectural Services Department.

Site relationships

The Centre is on the ground floor of a four storey classroom block. Half of this area was covered arcaded open space, and half was used for the school library. The Centre extends beyond the original confines of this ground floor area.

With the development of the Centre new relationships between different parts of the school building have been established. A feature of the project is the integration of the school and public libraries into a single facility in one space, thus releasing the existing library for other uses. The new offices that form the link between the school and the Centre now house the senior administrative staff in a central location. This has liberated other offices enabling the community education staff to be located close to the spaces used for community education, rather than off-site, in council offices.

One difficulty that an evolving and multi-use site faces is the development of several entrances. At the centre pedestrian and car access are separated, and primary, secondary and community uses of the building have changed over the years, so that the main entrance and reception area are hard for a visitor to identify. The Centre was located beyond the existing block to reduce the amount of new building, and conversion work, and to be close to central administration. However the result has been that it is less visible to the public. A broad band has had to be painted on the corridor wall in an attempt, only partially successful, to draw the visitor from the entrance which leads off the car park to the reception area.

- A building which is expected to offer significant access to the public needs a well-signposted, visible entrance.

Plan layout

The Centre is all on one level, and can be thought of in four functional zones, which overlap to some extent, and are connected by a simple circulation route (Fig. 17).

The four zones are:.

1 The learning and using areas
2 The information support areas
3 The technical support area
4 The forum linking these areas

Some of the spaces provided are similar to those in other schools or in conference centres. It is their juxtaposition within a secondary school, and their planned use by a wide range of users that make them exceptional. The plan and the areas of the Centre are shown below. (Figs. 18 and 19)

Fig. 17 A diagram of the four zones

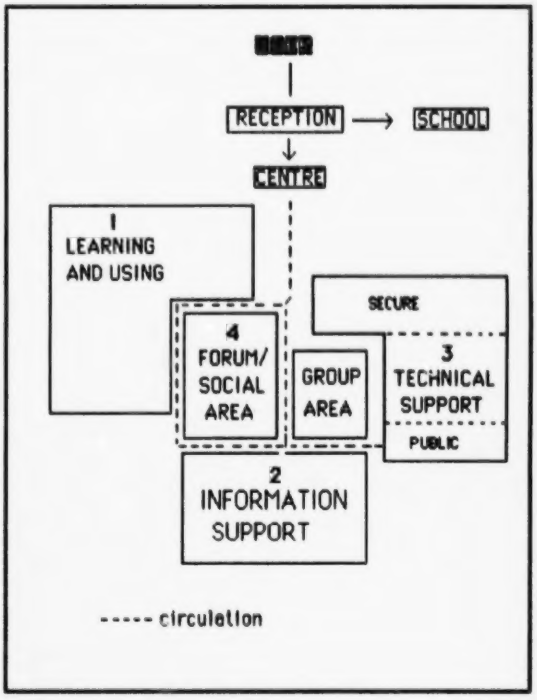


Fig. 18 The layout of the Centre

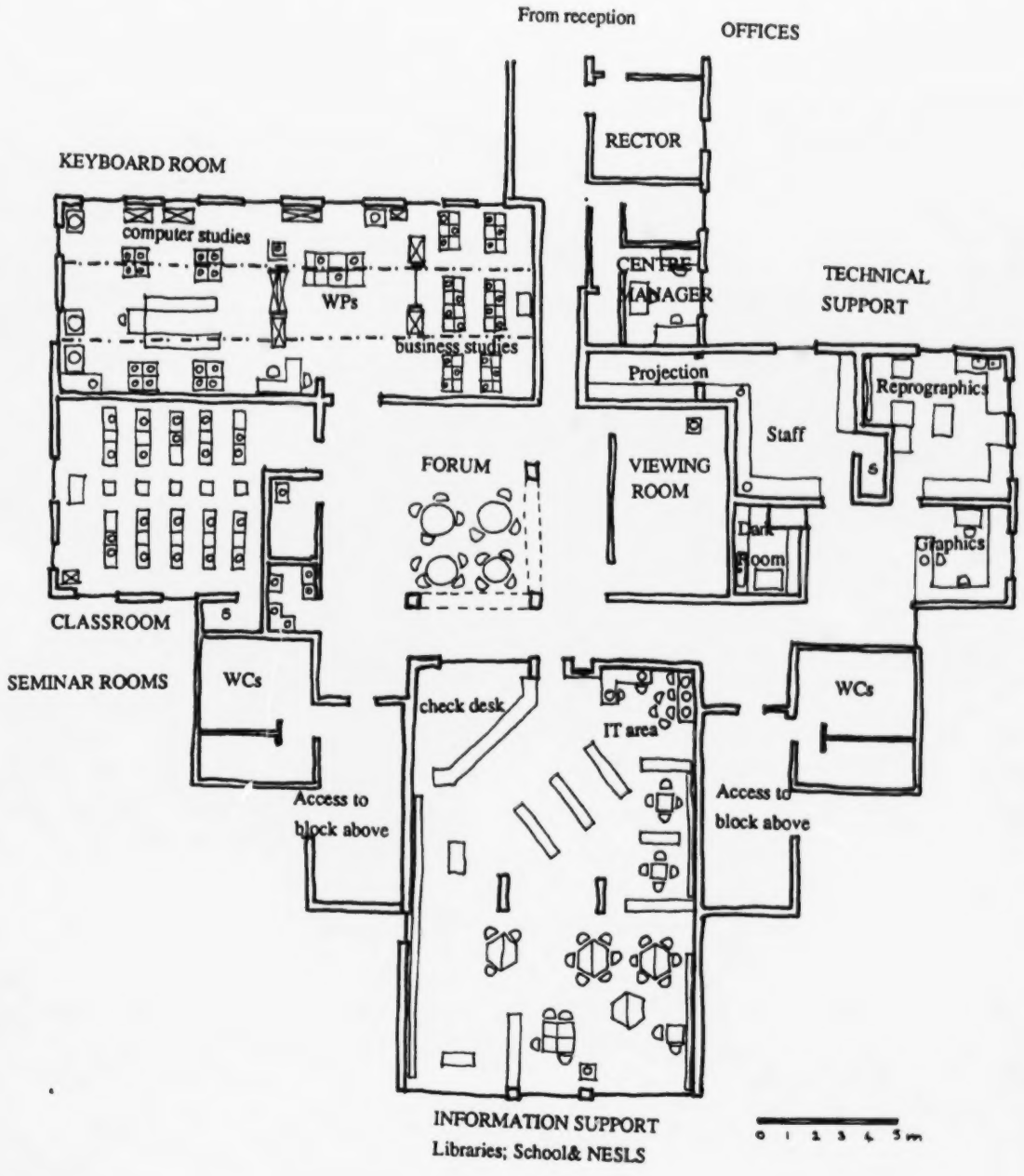


Fig. 19 The area provided by the Centre.

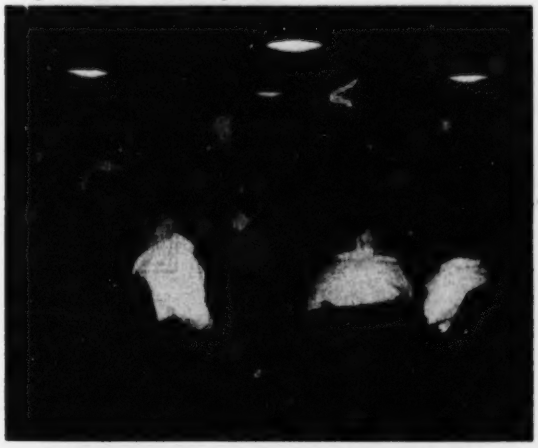
	m^2 proposed	actual
Classroom	52	57
Computer area		52
Business studies	90-100	165
Storage	2 x 8.5	17
Support Services		
- Reprographics	25	44
- AV/Repair, etc	30	27
- Graphics	15	28
- Secure store	8.5	
Viewing/Meeting room	36-40	45
Lounge (incl. Tuck shop)	50-60	65
Offices		
- Rector's office	20	14
- Depute's office	7.5	7
- Asst. Rector/Manager	12	11
- Booking/Reception/ Clerical	20	23
Dark Room	14	13
Library Resources (incl. 2 stores of 8.5 and incorporating existing libraries)	200	190
Stores	-	15
Interview Room	-	22
Circulation	60	94
Plant	-	46
TOTAL	733	889

The spaces, their equipment and use

i) The forum and viewing room

A central meeting and waiting area was provided so that different users would feel welcome in a shared environment, and to give the gathering space needed for public functions. This area is shielded from the circulation around it by greenery. Low tables and chairs allow informal groups to gather for chat (Fig. 20). The absence of a coffee machine, and the restrictions (due to fire regulations) on the provision of additional notice boards are regretted by the users. The movement of large groups of children at break time has inhibited its use in the daytime by the public. But it is well related to both the library and the viewing room, and has good possibilities for future development as a gathering area for a range of different users.

Fig. 20 The forum space



The viewing room next to the forum has been well used. It is approximately 5.5m x 7.5m, and has proved an admirable size for groups of about 30, classes from the school, business users holding receptions or exhibitions, or committee meetings. The fold-up tables and stacking chairs, that can easily be rearranged, have provided a flexible well used space. Minor changes such as painting the end wall white for film projection, could improve it still further.

- The central space and the related viewing room have contributed to giving the Centre an identity. They need to be further exploited.

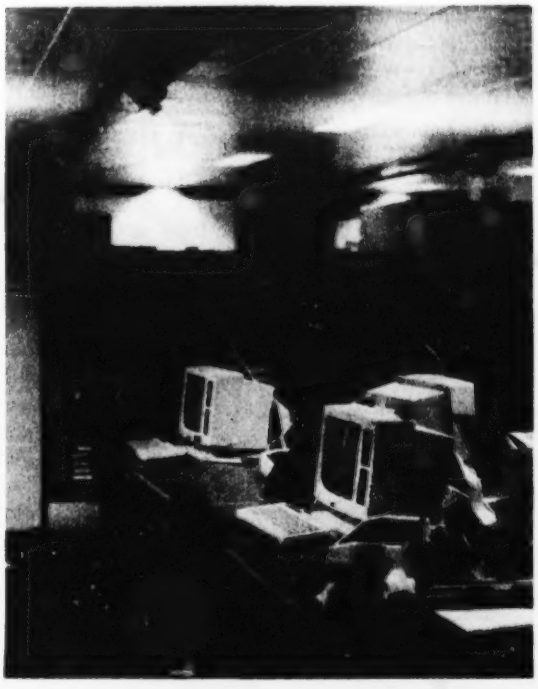
ii) Learning and using spaces

There are two small seminar rooms. One is used by the public when they wish to have an extended period using a micro-computer and a printer. It houses five different machines and their software, instruction manuals and printers. The other seminar room is primarily devoted to serving the needs of teaching staff both from the Academy and the primary schools. Both these rooms are kept locked when not in use, as the highly portable manuals and software in particular, are vulnerable to theft. At present these rooms are not attractive, as they are very small and have no natural light, and have caused some adverse comment by the public.

The large classroom is unusual. It is longer than a standard classroom and, on the advice of the space planning consultants is provided both with perimeter trunking, and two overhead power booms which run the full length of the room. The area is used by two or three independent groups at the same time, often for classes in which all students are making use of individual keyboards and screens (Fig. 21). It has been possible to make several complete changes in the room layout during the period in which the Centre has been functioning. Such flexible provision only exists in this one space. In the other classroom and the seminar rooms about a dozen extension cables are having to be used.

- The keyboard room size and its combination of cabling systems have enabled it to be adapted to changing needs Other spaces need similar cabling flexibility.

Fig. 21 The word processor area



Some of the changes have been achieved by making use of two sizes of table, both relatively small, in a variety of groupings. Special carrels have been designed for the Centre, although they would be unlikely to offer the same flexibility for class work as the tables, and could inhibit supervision of pupils. They may be suitable for members of the public requiring some privacy and sound shielding, though they do not offer a large work surface. Although the carrels can be easily connected to the service routes in the keyboard room, it is unlikely that the school could continue to use this room as intensely as it does if carrels were installed there. There are also doubts about how acceptable simultaneous use of such a space would be. For an area where school work will be traditionally structured for much of the time, joint use could take some time to become the norm.

- less specific furniture usually offers greater opportunities for change and development.

iii) The information support space

The library, as has been mentioned, has a more complex role than is usual in a small facility of

this kind. It houses a normal school library plus the public lending and reference collection. Thus it must be suitable for all ages and provide an acceptable environment in which the material can be consulted. This is not unknown in 'community schools' in other areas. However it is also providing a new model of public information resource. In one corner there is an area devoted to IT with four computers, used for a wide range of activities. The computerised library index can be accessed here. Prestel and teletext as well as a local database, Affordtel, are available.

Microcomputers can be used by the public to run software, and are available to the pupils, who flock to them in their break periods. To ensure sufficient staff hours to provide a full service for the school, the library has been closed to the public in the late afternoons. Work is still needed on accustoming the public to the effects of school timetabling which releases children in bulk thus flooding the library at particular moments in the day. However the management, which includes a schools librarian and NESLS staff, has been particularly successful, and neighbouring schools are coming to observe and copy the arrangements.

- Well-resourced information areas of this sort are becoming increasingly important in both community and school life. Close attention to their management is required.

iv) The technical support areas

The office for the Centre manager is adjacent to those for the Rector and his assistants, close to the general reception area for the school and the Centre. The other technical support areas consist of rooms used mainly by the staff. The process camera in the dark room, and the platemaker, hot press machine, guillotine, copier and offset machine, enable high quality printing work of a wide variety of types to be produced. This has proved to be one of the most popular aspects of the Centre for members of the public. There is a projection room to serve the viewing room, and an area for graphic design. The present support space has however almost been outgrown. Extra rooms for process camera work and video editing would be valuable.

- The introduction of IT makes it essential that support areas are no longer regarded as a luxury. They are an essential element in the functioning of classrooms and resources. Without them a computer-based learning environment cannot be maintained. Space standards even in 'traditional' school buildings must be reassessed to take account of this need.

Evolution of the plan

The conclusions from the Dunblane seminar (5) contain specific information, based on the same principles that underlie the design of the Centre, relating to servicing, space requirements and layout considerations.

The layout of the Centre has evolved over time. Most of the changes that have taken place have resulted from the introduction of new or additional equipment. This can be expected to continue. For example the computer network was extended to the seminar rooms and the library. The room sizes and cabling provision have proved in general suitable for such changes. The second classroom has been planned so that the wall dividing it from the large keyboard area could be removed and the overhead cabling extended which would enable any necessary further adaptation of the areas. The smallest fixed spaces are the least useful and it is planned to combine them into a single larger space.

- The basic plan layout, consisting of a variety of different-sized highly-serviced spaces grouped around the circulation and forum area, is successfully coping with changes in patterns of use.

6. THE USERS OF THE CENTRE

The Academy

The secondary school has used the classroom and teaching spaces provided in the Centre from its opening. The job description of the Centre manager includes responsibility for providing suitable equipment and learning facilities for the Academy. With the networking of the microcomputers in the keyboard area, and the appointment of a member of the school staff to be responsible for teaching in the computing field, the use of the space by the school has increased and developed. There is a lunchtime club for those children.who wish to use it, and the basic introduction to the use of computers is gradually reaching an increasing number of age groups. The viewing area is extensively used during the week for classes making use of audio-visual material,

- The pupils are becoming familiar with a wide variety of IT possibilities.

The primary schools

One of the.original objectives of the project was the 'enhancement of the viability and quality of teaching in the Academy and feeder primary schools'. To help define how this might be achieved, the head teachers of all the primary schools participated in a questionnaire designed to elicit their views on their need for and ability to use IT. They also had a day of hands-on experience and other visits.

Since the Centre has been open, there has been less use of the facilities than had been hoped. The primary schools all visit the Academy site once a week to use the swimming pool, but not all find that it is convenient for them to extend their visit and use the Centre at the same time. In one school, however, Echt, the 10 and 11 year olds have successfully produced a guide book to their area, having made use of the Centre on their swimming day.

The children from Alford primary school are able to visit the Centre regularly, but for some of the others there is a real problem with access. They do not always have sufficient teaching resources to allow extended time at the Centre, nor can they afford the cost of bussing (about £30 on each occasion), for a visit at a time convenient to their own work pattern

- Detailed investigation of accessibility for off site users must be included in planning.

Teaching staff may have little need for computer based services for their own work. Because most of the schools are small, the aspects of running them that might in other circumstances be suitable for automation are often not really worth putting onto computers. A number of the smaller schools, on the other hand would find a small photocopier, or a video-tape recorder, within their own building, very valuable. Waiting for the weekly visit to the swimming pool to make copies.of documents, or to show an educational tape, is not the best way to take advantage of the educational possibilities inherent in IT. More loan equipment would help the primary schools to benefit from the central resource. The computers they have currently are not compatible with any of the equipment at the Centre. If there were two or three additional computers available from the Centre on a loan basis, primary schools could run projects for a term, and would find the Centre a valuable source of software, advice, and printing capability.

The public

The number of users from outside the schools has also been growing. The services available will be published in a leaflet for the general public (Fig. 22). The local community education officer identified at the inception several local needs for new technology. They included the printing of newsletters and posters, classes in the use of microcomputers, use of video equipment for training purposes, and the storage of information within the community education area. At present there is no official Centre Users Group, whose members would be able to help the definition of developments. During the briefing period an embryo group met once and seemed potentially very valuable.

- Some focus such as a Public User Group should be encouraged.

Fig. 22 Facilities available at Alford IT Centre

Opening:- 09.00-16.45 Mon and Fri.;
18.00-20.00 Tues.,Weds. & Thurs.

1. *Photocopying*: including colour, card, transparencies.

2. *Other reprographics*: including offset litho-printing;hot foil printing; binding; process camera work; laminating covers; foils; Kroy lettering; graphics and art work; desk top publishing.

3. *Equipment hire*: cameras; projectors; video (VHS) equipment; audio equipment; computer equipment; typewriters; miscellaneous audio-visual equipment; overhead projector; binoculars.

4. *Library facilities*: computerised catalogue with keyword search; personal computers; Alfordtel (a local database); Prestel; Times Network for Schools; index of software with keyword search; Teletext

5. *Other computing facilities*: public room with five different machines; printing facilities for all machines on a range of printers;software for business use, programming, graphics, statistics.

6. *Computer-related services*: general advice on hardware and software; advice on particular programmes; print-out service; CAD and laser printing service; desk-top publishing service (soon); help with installation of hardware.

7. *Training courses and seminars*

8. *Photography facilities*: darkroom and photographic services

The pattern of use that has developed in the Centre has been reviewed for three dates: one month after the opening; one year after that; and at a midpoint. The results are summarised below (Fig. 23). This can be compared with the expectations of the briefing team which are shown in Fig. 24.

Use by the public was slow to start but it is now building up. Use of the reprographics facilities however grew quickly. This is an easily identified need, and the quality produced at the Centre is high, at a reasonable cost. The viewing area has been used for a wide range of external events, though not yet very intensively. The development of special classes now looks likely to progress well as there is a growing list of people anxious to enroll in classes in word processing, and other subjects, when they become available.

Fig. 23 The developing use of the Centre

	Printing jobs for external user	Printing jobs for Academy	Library computer area by children	Library computer area by Public	Viewing Room Public hiring	Viewing Room School	FE Classes	Comp-uter use by the public	Advice
Nov. '86	1	2	100% during free time	0 because of children	1	2-3 days/ week for half day sessions	0	0	0
June '87	6	27	100% during free time	c. 25/ month with adults only in evenings	2	as above	0	12 (9 bus-iness)	12
Nov. '87	49	25	100% during free time	as above	2	as above	Six 6-wk sessions	25 (18 bus-iness)	24

Fig. 24 The expected use of the Centre

Printing jobs for external user	Printing jobs for Academy	Library computer area by children	Library computer area by Public	Viewing Room Public hiring	Viewing Room School	FE Classes	Comp-uter use by the public	Advice
not speci-fied	not speci-fied	no booking	no booking	2 eves /week and 1 day /week	daily	2 /week	20 /week 3/4 in business area	not speci-fied

Marketing possible uses

During the briefing period much was made of what it was hoped the Centre would provide. There were high expectations from the public (Fig. 25). Now, when the original excitement has died down, and actual and potential users have a working Centre to react to, it is possible to establish ways to encourage development of specific relevant services. A survey of potential business users in November 1987 identified more precise needs than had hitherto been targeted. The available reprographic services were well understood, but it could be seen from the survey that the community were not fully aware of the other related services. These need publicity. One comment was 'The best publicity is guided tours, after that a comprehensive booklet'. Such tours are planned for the early Spring and the booklet is in hand. What people in the survey said they were seeking from the Centre was not simple access to equipment for their own use, but advice and support from experts to enable them to function independently, either at the Centre or at their own premises.

- The service needed by the community is becoming better understood and ways to provide it are being developed. This experience will be particularly valuable for similar projects in the future.

Fig. 25 Some attitudes of potential users in 1984 .

"The easy production of attractive posters would help our image and advertise our events better" - Community group

"An attractive, comfortable meeting place with first class audio-visual equipment would make our meetings more informative and productive" - Farmers discussion group

"The agricultural supply industry offer computer programs for levels and times for fertilizing. I am looking to a program to assist me with my cropping procedures" - Farmer

We could utilise a micro for the storage and dissemination of community information" - Community worker

"The ease of obtaining print runs locally would make mail-shots a simple operation" - Businessman

"Computerisation of the membership and records would make running the Society much easier" - Club secretary

7. MANAGEMENT AND FUNDING

Community schools and dual management

Benefits of dual management

The Grampian Region has a different school management pattern from other regions in Scotland. Since it was created in 1975, it has operated its community schools under dual management. The school head and the community education officer have joint responsibility for the management of school buildings, their use, staffing and equipment requirements. The main reason for this approach is that it offers educational benefits. The responsibility given to the community users breaks the domination of the traditional school system. The educational needs of the community can thus be better met. Schools not designated as community schools are managed on a traditional pattern.

Problems with dual management

A recent education department report highlighted some problems with the community education service, including: 'The extent to which aspects of the Service appear to be under resourced', and 'The lack of formally approved policies for the service in terms of its overall aims and objectives, the areas of work it should be responsible for, and within these what the policies should be'

The dual management system is still evolving. The origins of the two elements, the school and the community education programme, are so different as to be in some respects incompatible. The hierarchical structure of the school gives the head teacher full authority for decisions. In community education decisions are reached by a group in which participation is significant. The community education officer, often a fairly young person, is a facilitator, not a decision maker. The inherent differences can lead to conflict, confusion, and 'red tape'.

Introducing a third element

It has been suggested that

> 'individual access to information technology resources, local resource based learning, and community involvement are ingredients explosive

enough to blow up all the traditional boundaries between institutionalised learning and all-embracing, more comprehensive, forms of knowledge. They could revolutionise the whole concept of school and therefore the whole attitude towards the role of education in the social process' (6)

The situation is already a complex one where management patterns can have powerful effects on the nature of education and social provision. The Centre is a resource that belongs neither directly to the school, nor to the community education department, but serves both, and at the same time presents new opportunities outside the realm of either. It creates a third element to be taken into account. A new type of leader and decision maker has entered the picture - a manager with technical expertise whose authority derives neither from a traditional hierarchy, nor from consensus.

- While real and important issues surrounding the future of education are still under debate and the subject of research it is not easy to make final decisions about longer-term management roles anywhere, let alone in a pilot project such as Alford.

Present management and funding

Management options

There are three possible forms that Alford's management could take. The first allows final decision making, in situations of conflict, to lie with the Rector. In such a situation there is a possibility that, when a conflict of interest arose, school needs might dominate those of the community The second extends the notion of dual management to triple management, where the school, the community and the Centre each have a role. This format may be the one to be developed in Grampian eventually, but it must be properly tested in a favourable environment to assess how to overcome the problems inherent in joint management teams. The third possibility allows for the Centre itself to be under a manager who has autonomy to make decisions in respect of the whole resource: the space, the equipment and the staff. The unresolved question here is whether school and community can be expected to defer to the manager of an autonomous IT Centre.

The present mixture

Dual management has not formally been implemented at Alford as it was only in December 1987 that a circular officially designated the Academy as a community school. The Centre has so far been operating without a complete and agreed blueprint for its management structure which comprehensively defines the responsibilities of the Centre manager, the school Rector, and the community education officer. The present position is that the Rector is the head of the unit as whole and the manager answers to him. However the Directorate of Education of the local education authority is responsible for procedural decisions, within the policies decided by Grampian Regional Council. Communication with the Directorate is through the Rector, although minor ad hoc decisions can be made as required, and in practice there has been little interference and few restrictions.

These arrangements are not however very efficient. For example the booking routine is cumbersome. Requests to book space or hire equipment must be submitted in writing to the Regional Office, up the road from the Centre, before they can be accepted by the Centre. If official acceptance as a further education use is required, the booking procedure can be particularly elaborate and may on occasion have lost the Centre commercial bookings for the viewing room. Such problems are symptomatic of a situation where clear roles for all those involved are not yet established. Staffing and purchasing decisions and thus the development of the Centre during its first year have been affected. The rate of progress has been affected by uncertainty, and response to public needs may have been held back.

Finances

The annual budget for Centre expenses is £5000. As is the case for all schools in the Region, expenditure over £200 must be authorised and budgeted for by the Directorate of Education. Such amounts may easily be needed for items of hardware or software. Acquisition could be pursued more effectively if the manager did not have to embark on the long drawn out procedure of making formal application for each purchase over the £200

limit. This is particularly important for the replacement or upgrading of equipment which had originally been loaned, and in providing up to date software, and part-time staff to meet new teaching and advisory needs as they arise.

The loaned equipment, acquired through companies who were approached early in the briefing process, has an uncertain status in some cases. Theoretically it could be recalled with no notice, leaving a gap for which there is no assured replacement funding. An efficient collator, for example could cost £2500, well beyond the remit of the manager to authorise even if he could afford half his budget on a single item..

The situation with regard to profits is also still to be resolved. The intention has been that when serving the outside community, the Centre should operate as a business and make a profit. This has occasionally led to problems in relation to levels of charges proposed to groups, such as the local photographic club. The charges have been higher than those to which they are accustomed. The precise way in which charging patterns should be decided, and the ways in which any profits could be used to further the Centre's development are still 'grey areas', which need clarification.

Piloting a management system

The difficulties inherent in running the Centre under the present arrangements are illustrated by the late appointment of the Centre manager. He was eventually appointed a week before the official opening and arrived two days before the Minister opened the Centre. The delay arouse because the job title took a long time to be agreed by the relevant committees, so delaying formal advertising of the post. Since then it has not been easy for the manager to find time to create public awareness, develop useful courses and services, and adapt timetabling, staffing and equipment provision. School use of the Centre started immediately and the many strands of management authority to be understood and integrated left little spare time. Many of the practical issues would have been better decided before the Centre started in operation. The potential manager would have been able both to contribute to and benefit from the briefing process.

At the briefing stage, with the manager present, it would have been possible to agree a management system suited specifically to Alford and the people involved, and to pilot its implementation. This would have been seen to be a temporary solution, to be reviewed and adapted in the light of experience, and need not have pre-empted any decisions on matters of principle being discussed within the Region.

8. CONCLUSIONS

Aims

- An interim progress review, to maintain the impetus towards the original aims is important in projects of this nature. When assessing the success of a pilot project, progress needs regular recording and monitoring.

- The aims expressed for the project, have far-reaching implications for future education provision. Their radical nature underlines both the importance, and the potential vulnerability, of such a pilot project. The aims need to be robust and clear and agreed between participants in order to survive the pressures that will inevitably arise.

- Where aims, as well as the methods of meeting them, are evolving, extra development time and extra cost will be incurred.

- The aims of the project were very general. It might have been better to set clearer objectives.The Alford project is being used to explore what can be achieved for primary schools. In such situations a contingency budget for the purchase of additional equipment or for paying part-time staff, for example, is required

The briefing

- The traditional architectural briefing process must be widened to include analysis of organisations and services provided within a building. When rapid change dominates constant reassessment of the purpose and effect of a project is needed to create a resource of continued relevance to users.

- A team with mixed skills and backgrounds is needed to consider factors relevant to the working of the building beyond its form and finish. Addition of an external educational specialist might have been valuable to put the management picture into a wider perspective.

- Designers as well as funding bodies need always to be aware of ways in which their decisions and actions influence the opportunities available to building users. Before this project began, the architects from the Grampian Region had had little experience of working with an active client. Greater contact with the client will help designers understand the impact of their buildings on users, and help to improve a client's ability to get the best out of the design services he may need to call upon.

- The briefing team for a pilot project should be brought together again to review progress. To be useful this review should have been planned for during the development process, in order to allow assembly of suitable information for review at the appointed time.

The building

- An evolving need requires opportunities for flexible space use. This is not the same as flexible spaces. A variety of spaces, rather than many similar ones, even if those are 'flexible', gives a better opportunity to assess which ones are most valuable and why.

- Very small fixed spaces may present difficulties. Demolition may be needed to accommodate change. Changes of this type are already needed at Alford. This must be expected and the cost and disruption allowed for in the course of a pilot project.

- With only storage space separating classes in the Alford keyboard area, several groups have still been able to use it simultaneously. Although this has not been without its problems, areas with few fixed divisions may be suitable for shared and changing uses. Techniques such as those used for office planning have become more relevant to educational buildings.

- The forum area has not been fully exploited. Restrictions on the fittings that can be provided may have something to do with this. It may be necessary to waive normal requirements during pilot projects in order to test possible uses effectively.

- The high level of provision of cable routes was crucial in allowing for adaptability. It will need to become standard for IT areas, and gradually for all educational spaces, as computers are integrated. The equipment has been frequently moved about in all the areas, highlighting the need for adequate cable provision even in spaces such as the library, the viewing room, and the technical support areas

- Security of vulnerable portable equipment has not been given special attention here. The community's own involvement with the Centre may make it less rather than more vulnerable. In an urban environment, more trolley-based equipment, lockable stores and security controls would have had to be considered.

Management

- Where the management arrangements for a project have to evolve in a wider context, a relatively long pilot time is needed.

- A project like this should be used to test management issues as well as physical ones. This would make it possible at the end of the pilot period to indicate ways in which decisions about management structures taken at Regional level might influence the working of the Centre.

- A clear management system, devised to suit this particular project, could have been used 'without prejudice' and allowed to evolve if need be.

People

- The individuals involved, their knowledge, commitment and enthusiasm were a vital ingredient in starting the project. Without them it would not have taken place.

- They, and the people working there now, are equally important to its present and its future A new initiative, without established protocols and a momentum born of well understood and fully accepted objectives, depends on individuals with motivation. Enabling organisations should modify their normal working patterns if necessary to take account of this, and ensure that frustration does not build up and inhibit progress.

The way forward

- Pilot projects are needed, especially in periods of rapid change, to learn how to let adaptation take place as smoothly as possible.

- The involvement of a steering group to monitor progress throughout the life of a pilot project, would improve feedback for the project itself, and for others following it

- A database of educational projects in the field of information technology would have been valuable to the briefing team at Alford, and could be used by those developing future projects.

FIGURES

1 Factors that created the context for the Alford centre
2 The importance of computers in education
3 Alford's location
4 Alford and its catchment area in relation to Aberdeen
5 The Alford catchment area
6 Kildrummy primary school
7 The feeder primary schools
8 The aims stated in the prospectus
9 Traditional 'linear' briefing
10 The Alford briefing
11 Differences in the processes
12 Relating building needs to functional demands
13 Analysis of the responses of primary school head teachers
14 Stages in the take up of IT.
15 A management structure suggested by the team
16 Briefing for a resource not a building
17 A diagram of the four zones
18 The layout of the Centre
19 The area provided by the Centre
20 The forum space
21 The word processor area
22 Facilities available at the Alford IT Centre
23 The developing use of the Centre
24 The expected use at the Centre
25 Some attitudes of potential users in 1984

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APPENDIX

The Alford IT Centre project

First team meeting	October 1983
Tender date	29 January 1985
Date of opening	15 October 1986

Development team

Martin Garden	Scottish Education Department
Dan Wray	Depute Director of Education, Grampian Region
Robert Graham	Rector, Alford Academy
Robert Leonard	Community Education Officer
Nisbet. Gallacher	Her Majesty's Inspectorate
Ean Mackie (project architect)	Department of Architectural Services, Grampian Region
John Worthington	DEGW (space planning consultants)
Margaret Guthrie	Team secretary

Other Advisers

Gerald Moore	North-East of Scotland Library Service (NESLS)
Gavin Bell	Grampian Educational Microelectronic (GEM) project
Bill Payton	Grampian Region Schools Library Service

Contract & building details

Gross area	889.38m^2
Total cost	£487 143
Cost per square metre	£547.73

Materials and finishes

External walls	Cavity blockwork with roughcast
Roof	Metal deck on steel beams with bitumen felt
Plant room roof	Steel structure clad with timber rails, then slates
Windows	Aluminium, 20mm double glazed
Internal doors	Flush doors, Sapele veneered, hardwood lipped to long edges
Wall finishes	Plywood to dado height, hardboard, Gyproc wallboard, brown facing bricks in various areas Decorative wool finish in office and reception areas on single walls
Floor finishes	Technical areas - Poly Safe safety floor General and circulation - vinyl tiles and sheet Classrooms and library - carpet, (anti-static for computer area)
Ceiling finishes	Suspended systems with acoustic panels or steel tiles Forum area - Formalux (to increase feeling of height in area with restricted space)
Circulation areas	Donn Paraline facing elements to allow good access to services
Paint	Plasterboard and plaster - vinyl emulsion Brick - sealer Wood - polyurathene

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